

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/556,328

6,353,700) ("Zhou"). Claims 7-16, 22, 27, 35, 36, 37/35, 37/36, 39-43, 45 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants submit the following in traversal of the prior art rejections.

Rejection of Claims 1-6, 17-32, 34, 37/34, 38, 44 and 47-49 under § 103(a) over Mitsuyama and further in view of Ishihara

Applicants submit that claim 1 is believed to be patentable because Ishihara is improper prior art. Ishihara is a nonanalogous art and cannot be properly used as a basis for a § 103 rejection. M.P.E.P. 2141.01(a). In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.

Id.

Ishihara relates to color image transfer processing for compressing color image data of a full color space which is treated in a computer by a subtractive color pallet and for transferring the compressed data to equipment such as a printer. Col. 1, lines 10-15. Instead of transferring a full color pixel data of three bytes, Ishihara discloses converting the full color pixel data into halftone data of one byte by using a LUT called a subtractive color pallet and transferring the halftone data. Col. 1, lines 27-37. This is different from the field of Applicant's endeavor.

further in view of Zhou, since no explanation regarding the rejection of claim 33 under Mitsuyama in view of Ishihara is provided by the Examiner.

An embodiment of the Applicant's invention relates to a method for segmenting a color image. Using an input image, the method calculates as a first value, the degree of difference between a pixel and a color of peripheral pixels based on a plurality of pixel values. Then the first value is converted into a value of a predetermined scale for obtaining a converted image. Finally, the converted image is segmented.

In contrast, Ishihara teaches counting the number of different color pixel values while scanning the pixels of color image data in every row and

[w]hen the number (A) of colors counted by the number of colors calculating unit exceeds a predetermined number (n) of entries of the subtractive color pallet, the transfer format discriminating unit counts the number (N) of transfer pixels up to the pixel at the end of the previous row, compares a transfer data amount according to the full color format of the number (N) of transfer pixels with a transfer data amount according to the pallet format, and instructs the data transfer according to the format having a smaller transfer data amount.

Not only is the nature of *row-by-row* scanning of Ishihara entirely different from the region segmentation method, the ultimate transfer of image data in a format having a smaller data size is not pertinent to dividing an image into segments. Thus, Applicants submit that Ishihara is not proper prior art.

Applicants also submit that each and every element of claim 1 is not taught or suggested by Mitsuyama or Ishihara, in combination or individually. For example, Applicants submit that Mitsuyama fails to teach, suggest, or provide motivation for (b) obtaining a converted image by converting the first value into a value of a predetermined scale, and (c) segmenting the converted image. In the Office Action, the Examiner points out the sections of Mitsuyama which disclose different object regions according to the different masks used as being analogous to (b). Col. 18,

lines 49-65. However, in Mitsuyama, there is no subsequent segmenting of the image of the object regions, whereas claim 1 recites (c) segmenting the converted image. In fact, the region segmentation that the Examiner points out as being analogous to (c) is performed to generate the image of the object region. Col. 18, lines 42-43, 54-56; col. 19, lines 20-27. In other words, the sections of Mitsuyama that the Examiner points out as supposedly teaching or suggesting (b) and (c), both merely relate to (c) segmenting the converted image and do not teach or suggest the obtaining a converted image. Thus, Applicants submit that claim 1 is believed to be patentable.

As for the Examiner's purported motivation to incorporate the teachings of Ishihara with Mitsuyama, it is observed that the halftone images result in the loss of color image data. Col. 2, line 61 - col. 3, line 2. In contrast, the loss of image data would necessarily impede the detection of object particles in a region segmentation method disclosed in Mitsuyama. Therefore, the Examiner's motivation is not supported.

Claims 2-6, 17-31, 44, and 47-49, which depend from claim 1, are believed to be patentable for the reasons submitted for claim 1.

In addition, Applicants submit that the region segmentation method as disclosed by Mitsuyama is entirely different from the claimed region growing method. The region segmentation method as disclosed in Mitsuyama is summarized in col. 12, lines 21-26. In the region segmentation method, the threshold values are determined from the density histogram 40 (see col. 11, line 15-col. 12, line 15). According to the region segmentation method, a binary image is produced from a color image consequently.

Turning to present invention, by the region growing method, adjacent regions included in the converted image produced by step (b) of claim 1 are merged if the adjacent regions are similar. Accordingly, an input color image is divided into a plurality of regions.

The following summarizes the differences between the region segmentation method and the claimed region growing method.

1. According to the region segmentation method, a binary image is produced from a color image. On the other hand, the present invention does not produce a binary image from a color image.
2. According to the region segmentation method, a color image is segmented into two fixed regions: a background region and an object region. However, an input color image is divided into a plurality of regions and the number of the plurality of regions included in the input color image is not fixed.

As explained above, Applicants believe the region segmentation method as disclosed in Mitsuyama is different from the claimed region growing method.

Similarly, claims 32, 34, 37/34, 38 are believed to be patentable for at least the reasons submitted for claim 1.

Rejection of Claim 33 under § 103(a) over Mitsuyama and Ishihara, and further in view of Zhou

Applicants submit that claim 33 is believed to be patentable because the combination of Mitsuyama, Ishihara, and Zhou fails to teach, suggest, or provide motivation for the deficiencies of claim 1 as discussed above.

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/556,328

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Seok-Won Stuart Lee*

*Granted limited recognition under 37 C.F.R. § 10.9(b), as shown in a copy of the same filed on January 8, 2004, at the U.S.P.T.O.

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: June 25, 2004